

## ABSTRACT

A method of fabricating thin-film semiconductor includes: a scanning irradiation step of, in order to form a polycrystalline silicon film on the surface of a substrate;  
5 focusing first pulse laser light having a visible wavelength into a line shape having an intensity distribution of an approximately Gaussian shape in a width direction on the surface of said substrate and applying the light such that the line shape is shifted in the width direction; an edge processing step of, after performing said scanning irradiation step in one position in one direction, applying second pulse laser light having an  
10 ultraviolet wavelength to an end region of an edge parallel to said width direction of a region (36) having undergone the scanning irradiation; and a step of applying said scanning irradiation step again to cover a region that is adjacent to the region (36) covered by said scanning irradiation step as well as overlaps said end region having undergone said edge processing step.